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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,306

06/06/2007

Raphael Frans Caers

2005M014

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23455 7590 11/14/2008  
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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

11/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,306	<b>Applicant(s)</b> CAERS ET AL.	
	<b>Examiner</b> Sikarl A. Witherspoon	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The examiner has considered the amendment filed by applicants on October 3, 2008 and the arguments therein. Applicants' arguments were not found persuasive; as such, the following rejection has been maintained and re-written to include newly added claim(s).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vora et al (US 5,714,662) and Cheng et al (US 2003/0125597) in combination, and further in view of Bahrmann et al (US 5,808,168).

The instant claims are drawn to a process for making a hydroformylation product by contacting an oxygenate with a molecular sieve catalyst to form an olefin composition, separating a propylene stream therefrom, and contacting the propylene stream with a rhodium catalyst to form a hydroformylation product.

Vora et al teach a method for producing an olefin composition containing ethylene, propylene, among other light olefins, by contacting an oxygenate, specifically methanol, with a molecular sieve catalyst (abstract; col. 15, line 15 to col. 17).

The major difference between Vora et al and the instant claims is that Vora et al do not expressly teach separation of a propylene stream, and subsequent hydroformylation of propylene produced in the oxygenate conversion process taught therein. However, Cheng et al teach that an olefin stream made from an oxygenate conversion process, specifically, a stream comprising propylene, can be separated by distillation such that the propylene-containing stream contains no more than 25 wppm of dimethyl ether (p 8, 0099 to 0100). According to Cheng et al, this separation is conducted so that the propylene stream is substantially free of dimethyl ether so as not to adversely affect downstream processing of propylene (or ethylene). This downstream processing includes the production of polyolefins, aldehydes, carboxylic acids, esters, etc, (p 9, 0109 to 0111).

Bahrman et al teach the hydroformylation of an olefinically unsaturated compound, such as propylene, using a rhodium-containing catalyst, to produce the corresponding aldehyde(s) (col. 5, lines 15-55).

The instant claims are therefore rendered obvious in view of the combined reference teachings, because Vora et al teaches the production of the olefinic starting material by an oxygenate conversion; Cheng et al provide the motivation for separating desired olefins such as ethylene or propylene from the product stream of an oxygenate conversion process; and, it would have been obvious to employ the hydroformylation process taught by Bahrman et al to convert the light olefin(s) made by Vora et al to the corresponding n-aldehyde and/or i-aldehyde, which have well established utility.

### ***Response to Arguments***

Applicant's arguments filed October 3, 2008 have been fully considered but they are not persuasive. The thrust of applicants' arguments is that Cheng et al is interested in polymer grade ethylene and polymer grade propylene and is never faced with the problem of hydroformylation in the presence of dimethyl ether. Hence, Cheng et al teach the removal of dimethyl ether from the propylene stream, such as step not being required by the present invention.

The examiner agrees that Cheng et al is interested in producing polymer grade propylene for use in subsequent polymerization reactions, i.e. after removal of dimethyl ether. However, Cheng et al expressly teaches separating a stream comprising propylene by distillation such that the propylene-containing stream contains no more than 25 wppm of dimethyl ether (p 8, 0099 to 0100). According to Cheng et al, this separation is conducted so that the propylene stream is *substantially free* of dimethyl ether so as not to adversely affect downstream processing of propylene (or ethylene). This downstream processing includes the production of polyolefins, *aldehydes*, carboxylic acids, esters, etc, (p 9, 0109 to 0111). The separated propylene stream may still contain an amount of dimethyl ether when fed to subsequent downstream processing, i.e. for the production of aldehydes. The examiner, upon careful consideration of the claimed invention has found that given *the broadest reasonable interpretation* of the instant claims, step (ii) recited in claim 1 does not expressly preclude the separation of dimethyl ether or any other compound that may be present in the olefin composition made in step (i) prior to contacting the propylene stream (ii) with

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the rhodium catalyst under hydroformylation conditions. Claim 1 uses open-ended claim language, i.e. the word, “comprising”, and as such, the examiner contends that the combination of cited references, given the broadest reasonable interpretation of the *claimed* invention, renders the instant claims obvious.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sikarl A. Witherspoon/  
Primary Examiner, Art Unit 1621